

Use of Acoustic Tagging to Study Home Range and Migration of English Sole (*Parophrys Vetulus*) in Puget Sound: Application to Management of Contaminated Sediments

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English sole are a suitable species for studies on effects of contaminants because they are broadly distributed in benthic habitats along the Pacific Coast where they can contact contaminated sediment. Historic tagging studies of Puget Sound stocks have shown that, with the exception of a winter spawning migration, adult English sole demonstrate site fidelity within sub-basin of Puget Sound, tending to remain on discrete feeding grounds most of the year. A significant correlation between liver disease in English sole and chemical contaminants in the sediments at their capture sites further support the hypothesis of high site fidelity. However, more complete information is needed on home range and habitat utilization to adequately characterize relationships between sediment contamination and fish health. A two-year study was initiated in 2003 to document movements by adult English sole tagged with acoustic transmitters. Twenty fish from Eagle Harbor, a small, contaminated bay, were implanted with transmitters and released at the site of capture. Stationary hydrophones were deployed to monitor fish moving in and out of the harbor. Individual fish movements within the harbor were actively tracked using portable hydrophones. Ten fish (50%) left the bay and did not return (9 of the 10 left within two weeks of release). Fish that stayed in the bay were generally found near the area of capture. Preliminary data analyses from tagged fish released in 2004 indicated similar movements patterns for the fish. These data will help refine estimates of home range, habitat use, and migration timing of English sole so we can better understand their exposure to contaminated sediments.